This listing of the claims replaces any and all prior versions and listings of claims in the application:

LISTING OF THE CLAIMS

1. (Previously presented) A method of selectively forming non-covalent complexes and initiating intermolecular reactions with amine group-containing compounds, comprising reacting the amine group-containing compound with a second compound comprising: (1) at least one crown ether group containing four or more oxygen atoms; and (2) a moiety selected from acidic groups, transition metal binding groups and diazo groups, wherein the acidic group is selected from a benzoic acid group and a sulfonic acid group, and wherein the transition metal binding group is a polyamine selected from ethylenediamine, propylenediamine, butanediamine, hexamethylenediamine, N,N-dimethylethylenediamine, diethylenetriamine, dipropylenetriamine, triethylenetetramine, tetramethylethylenediamine, N,N-dimethylpropylenediamine, N,N,N'-trimethylethylenediamine, N,N,N',N'-tetramethyl-1,3-propanediamine, hexamethylenetetramine, diazabicyclononane, sparteine, phenantroline, 2,2'-bipyridine and neocuproine and further wherein the amine-group containing compound is an amino acid, a peptide, or a protein.

2. (Previously presented) The method of claim 1, wherein the crown ether is 18-crown-6 ether.

3. (Original) The method of claim 1, wherein the acidic group is benzoic acid.

4-5. (Canceled)

6. (Previously presented) The method of claim 1, wherein the transition metal is selected from Ag(I), Fe(III), Co(II), Zn(I), Zn(II), Mn(II), Ni(II), Pd(II), Cu (I) and Cu(II).

7. (Previously Presented) The method of claim 1, wherein the diazo group is -C(N_2)-.

8. (Previously presented) The method of claim 1, wherein the moiety is attached to the crown ether group through an ether or an ester linker.

9. (Previously presented) The method of claim 1, wherein the amine group-containing compound comprises at least one protonated amine.

10. (Previously presented) The method of claim 1, wherein the amine group-containing compound comprises at least one primary amine.

11. (Previously presented) The method of claim 1, wherein the amine group-containing compound is a peptide or protein comprising at least one lysine.

12. (Original) The method of claim 1, wherein the formation of non-covalent complexes and initiation of intermolecular reactions is conducted in the gas phase.

13. (Original) The method of claim 1, wherein the formation of non-covalent complexes and initiation of intermolecular reactions is conducted in solution.

14. (Original) The method of claim 1, wherein the intermolecular reaction is the selective cleavage of a peptide backbone.

15. (Original) The method of claim 14, wherein the moiety is selected from acidic groups and transition metal binding groups.

16. (Original) The method of claim 1, wherein the non-covalent complex is formed with a peptide via carbene insertion chemistry.

17. (Original) The method of claim 16, wherein the moiety is a diazo group.

18. (Original) The method of claim 1, wherein the second compound further comprises a detectable label.

19. (Previously presented) A compound capable of selectively forming non-covalent complexes and initiating intermolecular reactions with amine group-containing compounds, wherein the compound comprises: (1) at least one crown ether group containing four or more oxygen atoms; and (2) a moiety selected from acidic groups, transition metal binding groups and diazo groups, wherein the acidic group is selected from a benzoic acid group and a sulfonic acid group, and wherein the transition metal binding group is selected from ethylenediamine, propylenediamine, butanediamine, hexamethylenediamine, N,N-dimethylethylenediamine, diethylenetriamine, dipropylenetriamine, triethylenetetramine, tetramethylethylenediamine, N,N-dimethylpropylenediamine, N,N,N'-trimethylethylenediamine, N,N,N',N'-tetramethyl-1,3-propanediamine, hexamethylenetetramine, diazabicyclononane, sparteine, phenantroline, 2,2'-bipyridine and neocuproine, and further wherein the amine-group containing compound is an amino acid, a peptide, or a protein.

20. (Previously presented) The compound of claim 19, wherein the crown ether is 18-crown-6 ether.

21. (Previously presented) The compound of claim 19, which comprises one crown ether group.

22. (Previously presented) The compound of claim 19, which comprises two crown ether groups.

23. (Original) The compound of claim 19, wherein the moiety is an acidic group.

24. (Original) The compound of claim 23, wherein the acidic group is benzoic acid.

25. (Original) The compound of claim 19, wherein the moiety is a transition metal binding group.

26-27. (Canceled)

28. (Previously presented) The compound of claim 25, wherein the transition metal binding group is phenanthroline.

29. (Original) The compound of claim 25, wherein the transition metal is selected from Ag(I), Fe(III), Co(II), Zn(I), Zn(II), Mn(II), Ni(II), Pd(II), Cu (I) and Cu(II).

30. (Original) The compound of claim 19, wherein the moiety is a diazo group.

31. (Original) The compound of claim 30, wherein the diazo group is -$C(N_2)$-.

32. (Previously presented) The compound of claim 19, wherein the moiety is attached to the crown ether group through an ether or an ester linker.

33. (Original) The compound of claim 19, which further comprises a detectable label.